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Morphological Variation and Distributional Ecology of the Giant Micronesian Gecko (*Perochirus scutellatus*) of Kapingamarangi Atoll[1]

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ABSTRACT: Distribution, habitat preferences, and intraspecific variation in the giant Micronesian gecko (*Perochirus scutellatus*) are discussed for the first time, based on 136 recently acquired specimens together with field observations spanning approximately 2 months. Only two specimens, both adult males, have been reported previously in the literature. *Perochirus scutellatus* is a large (up to 132 mm snout-vent length and 60 g body mass), sexually dimorphic (males larger than females), arboreal, and predominately diurnal gecko known only from Kapingamarangi Atoll (on 18 of 31 islands). Adults occur mainly on tree trunks (chiefly *Guettarda speciosa*), with densities as high as 25 per tree and encounter rates of up to approximately 150 per hour. Juveniles were encountered mainly in *Cocos* leaf axils during the day and in *Scaevola* bushes along the strand line at night. Adults are cryptically colored on lichen-covered limbs and trunks, being mottled dark brown to pale gray, with small, scattered whitish flecks and patches, and often faintly washed with yellow green. Juveniles tend to be paler, brighter (more yellow green), and more uniformly colored than adults.

THE GIANT MICRONESIAN GECKO, *Perochirus scutellatus* (Fischer, 1882), is known only from Kapingamarangi Atoll, Federated States of Micronesia, and only two specimens (both adult males) were available when the genus was last reviewed (Brown 1976). The holotype, originally number 4585 in the Godeffroy Museum, Hamburg, Germany, is labeled as from Greenwich Island (= Kapingamarangi) (Fischer 1882). No additional locality data were given in the original description (Fischer 1882), and apparently none accompanied the specimen (now BMNH 1946.8.14-7) to its present repository, the British Museum of Natural History, in 1886 (McCarthy, in litt.). The only other specimen mentioned in the literature was collected on a coconut tree on Tetau Island by W. Niering on 14 July 1954 and deposited in the California Academy of Sciences, CAS 139653 (Brown 1976; Niering's unpubl. field notes).

This study is based largely on my field observations together with 136 specimens of *P. scutellatus* I collected as part of a distributional survey of terrestrial vertebrates on Kapingamarangi during 19 June–13 August 1996.

Study Area

Kapingamarangi Atoll is a Polynesian outlier under administration of Pohnpei State Government, Federated States of Micronesia. It is about 716 km south of Pohnpei at 1° 04′ N latitude, 154° 05′ E longitude. The nearest other land is Nukuoro Atoll, about 300 km northward. Kapingamarangi is about 11.2 km long (east to west) and about 8.7 km wide. The total land area is about 113 ha (1.13 km^2) distributed among 31 islands, all on the eastern side of the atoll (Figure 1). Bryan (1971) listed 33 islands citing McKee (1956), Niering (1956), and Wiens (1956) as sources. By the early 1980s, however, Pungupungu had merged with Matiro (Leach and Ward 1981), and Herekoro had merged with the southern tip of Hare (Pohnpei State

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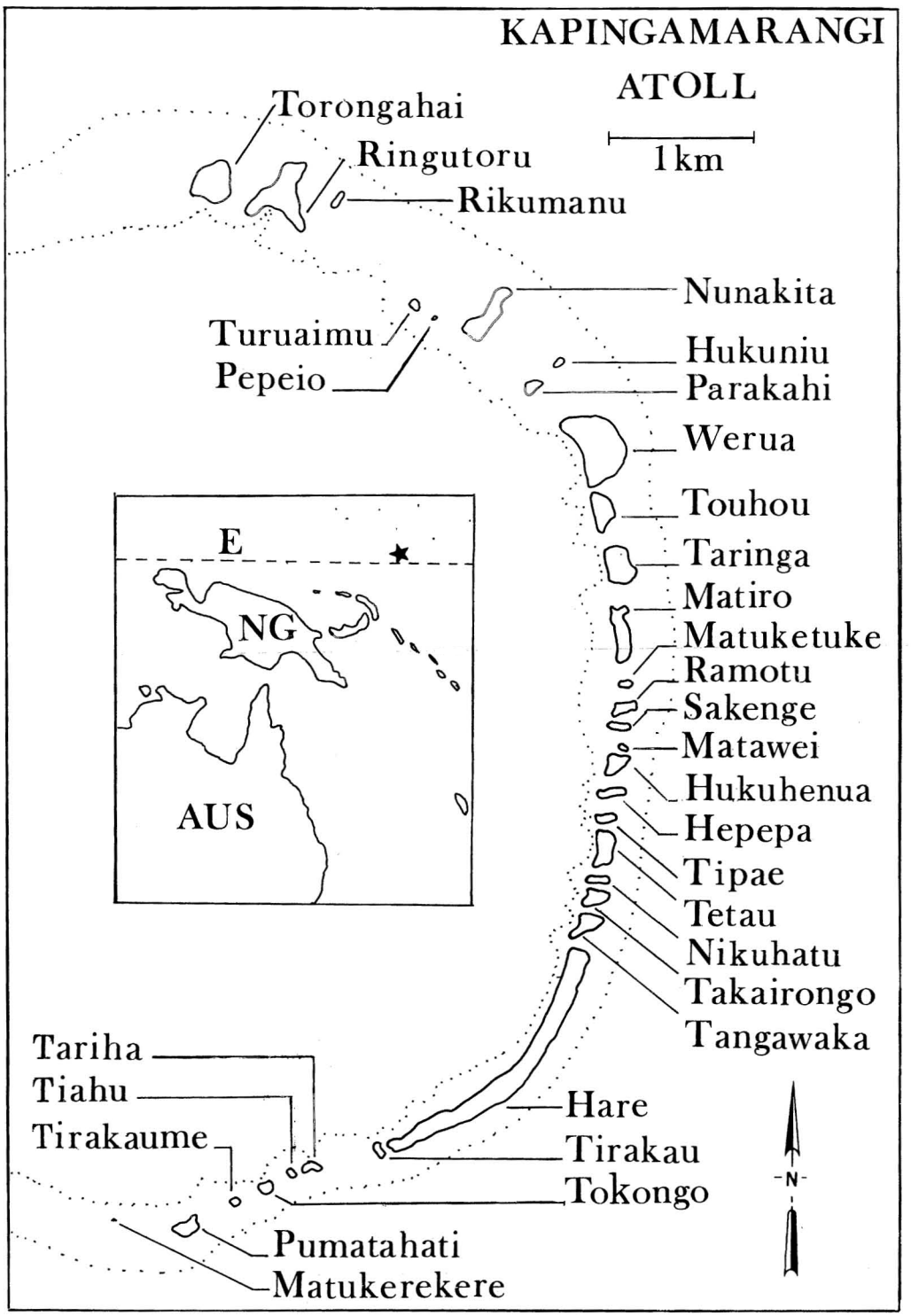

FIGURE 1. Location map for Kapingamarangi Atoll. AUS, Australia; NG, New Guinea; E, equator; star, Kapingamarangi.

Land Commission 1986) as soils had accrued around the interconnecting causeways. Regarding Pungupungu and Matiro, Wiens (1956:49) stated "the causeway has accumulated sand on both sides which in a few years should result in joining the two islands into one." At the time of my visit, the new land between these merged islands was as well vegetated as the main islands, and the only discernible indications of former separations were a slight dip in canopy profile and a broad, sandy beach on the ocean side of the former gap between Hare and Herekoro, and a ridge about 1 m high on the northern end of Matiro, probably a remnant of the old causeway.

The two largest islands are Hare (34.5 ha, 1.5 km long, 100–200 m wide) and Werua (16.8 ha), with no land being more than 200 m from the sea. The highest elevations are about 4–5 m on rubble banks of excavated taro pits (Niering 1956). Interisland channels range from about 43 m wide between Matawei and Hukuhenua to about 1 km between Turuaimu and Rikumanu. All are easily waded at low tide, being less than about a meter deep, and some of the islands can be reached dry shod during the lowest tides.

The vegetation is mainly *Cocos* forest with an understory of small trees, shrubs, and ferns; the density varies locally depending on the extent and recency of cutting and burning. Breadfruit trees (*Artocarpus altilis*) are common in the interior of the larger islands, especially along the rims of taro (*Cyrtosperma*) pits. Other common forest trees include *Barringtonia asiatica, Calophyllum inophyllum, Guettarda speciosa* (mainly at the forest edge), *Morinda serratifolia,* and *Pandanus* spp. The largest trees (*Artocarpus, Barringtonia, Calophyllum, Cordia*) frequently are greater than 1 m in diameter at breast height. The canopy consists largely of *Cocos* 25–30 m high, occasionally with emergent *Artocarpus.* The forest extends to the beach or abuts a narrow zone of coastal scrub, largely of *Scaevola* and *Tournefortia,* up to several meters wide. Niering (1963) reported that of 99 species of vascular plants, 56 were introduced as either early aboriginal or more recent introductions. The overall pattern of vegetation (Niering 1956, 1963, Wiens 1956) does not appear to have changed markedly in the intervening half century, differing mainly with respect to vegetational details island by island.

Average annual rainfall is estimated at 200–275 cm (Niering 1963). There is no standing freshwater except for temporary rainpools in taro pits and in artificial catchments or wells. Daily temperatures ranged from 26.7°C to 32.2°C during July–October 1947 and June–November 1950 (Emory 1965).

The population has fluctuated roughly from 400 to 600 during this century (Wiens 1956, Emory 1965, Office of Budget, Planning and Statistics 1994, Office of Planning and Statistics 1996). The 473 people counted in the 1994 census (Office of Planning and Statistics 1996) were nearly all on Werua and Touhou Islands. Temporary shelters and short-term residences occur on most of the larger islands where people may visit for days or weeks at a time to harvest coconuts, tend taro pits, and collect *Pandanus* leaves and palm thatch. The people essentially maintain a subsistence economy, obtaining most of their needs from the sea and limited resources on the land. Additional food and supplies arrive from Pohnpei via the government supply ship sporadically about four to seven times a year.

MATERIALS AND METHODS

All 31 islands were visited both in daylight and at night. Habitat was recorded for all voucher specimens and for individuals observed during census counts, which were conducted opportunistically throughout the atoll. Encounter rates were calculated from survey data limited to the 18 islands where *P. scutellatus* was recorded. Place names are from Bryan (1971), based on Wiens (1956), and Figure 1 is adapted from an aerial survey photomosaic prepared by the Pohnpei State Land Commission (1986). Specimens have been deposited in the Australian Museum (Sydney), Bernice P. Bishop Museum (Honolulu), British Museum of Natural History

(London), California Academy of Sciences (San Francisco), College of Micronesia Reference Collection (Pohnpei), Museum of Comparative Zoology, Harvard University (Cambridge, Massachusetts), and Smithsonian Institution (Washington, D.C.).

Measurements (in millimeters and grams) and scale counts include snout-vent length (SVL) (from tip of snout to anterior border of vent), snout length (from tip of snout to anterior border of orbit), head length (from tip of snout to anterior edge of ear), head width (the greatest distance across the skull measured between the eye and ear), eye width (measured across the exposed surface of the eye), body length (= axilla-groin distance), hind limb length (the distance from the anterior inguen to the knee plus the distance from the knee to the tip of the longest toe, including claw), tail length (from vent to tip of intact, unregenerated tail), tail width (the distance across the tail at a point approximately one head length posterior to the vent), tail depth (the vertical distance between dorsal and ventral surfaces of the tail at a point about one head length posterior to the vent), interorbital scale rows (the number of scales counted across the top of the skull between the centers of the orbits), supralabials (the number of enlarged scales bordering the upper jaw, unilaterally), supralabials anterior to the eye (the posteriormost extending in front of the orbit at least 50% of its length), infralabials (the number of enlarged scales bordering the lower jaw, unilaterally), femoral pores (the total number of pore-bearing scales anterior to the vent and along the posteroventral surfaces of the thighs, bilaterally), and fourth-toe lamellae (the number of scansors at least two to three times wider than long on the undersurface of the fourth toe).

Sexes were identified by examination of gonads or by presence of everted hemipenes in males. Linear measurements were taken with dial calipers with the exceptions of snout-vent length in specimens prepared for skeletonization, and for tail length, both of which were taken on fresh specimens in the field using a millimeter rule. Weights were obtained with a Pesola scale measuring in 1-g increments. Adult males are defined as those measuring at least 107 mm in snout-vent length, and adult females measure at least 86 mm; juveniles are specimens less than 80 mm SVL. The lower size limit in males

TABLE 1

MEASUREMENTS (IN MILLIMETERS AND GRAMS) AND SCALE COUNTS IN ADULT *Perochirus scutellatus* GIVEN AS RANGE, MEAN, AND STANDARD DEVIATION, WITH MODE AND PERCENTAGE FREQUENCY IN PARENTHESES

CHARACTER	MALES[a]	FEMALES[b]	*t*-TEST[c]
Head length	24.9–28.3	20.3–25.0	
	26.7 ± 0.86	22.6 ± 1.36	**
Head width	19.3–23.2	15.4–20.7	
	21.6 ± 1.02	17.9 ± 1.48	**
Snout length	11.9–13.8	9.8–12.1	
	12.8 ± 0.47	10.9 ± 0.68	**
Eye width	4.3–5.4	4.0–4.9	
	4.9 ± 0.23	4.5 ± 0.27	**
Snout-vent length	107.0–131.6	86.0–114.3	
	116.5 ± 4.86	98.4 ± 8.06	**
Body length	59.0–77.5	50.2–68.3	
	69.2 ± 3.99	58.4 ± 5.29	**
Hind limb length	43.4–57.3	36.3–44.6	
	50.6 ± 3.00	40.9 ± 2.46	**
Tail width	9.3–18.8	6.2–14.0	
	13.0 ± 2.28	10.1 ± 1.88	**
Tail depth	6.1–9.9	4.9–8.0	
	8.1 ± 1.10	5.9 ± 0.96	**
Body mass (g)	31–60	19–32	
	41.1 ± 8.16	25.5 ± 4.24	**
Interorbital scale rows	40–53	39–50	ns
	45.0 ± 4.09	43.9 ± 3.43	
	(43, 18%)	(40, 17%)	
Supralabials	11–15	11–14	
	12.8 ± 0.87	12.6 ± 0.74	ns
	(13, 44%)	(13, 56%)	
Supralabials anterior to eye	5–7	5–7	ns
	6.3 ± 0.59	6.1 ± 0.64	
	(6, 56%)	(6, 59%)	
Infralabials	10–13	10–13	
	11.7 ± 1.15	11.2 ± 0.92	ns
	(12, 36%)	(11, 44%)	
Fourth-toe lamellae	20–26	19–26	ns
	22.9 ± 1.55	22.4 ± 1.92	
	(22, 33%)	(21, 27%)	
Femoral pores	47–57	40–53	
	52.0 ± 2.44	47.2 ± 3.72	**
	(53, 18%)	(50, 17%)	

[a] $n = 40$ except for tail measurements ($n = 25$), labial scale counts ($n = 36$), and body mass ($n = 25$).

[b] $n = 30$ except for tail measurements ($n = 16$), labial scale counts ($n = 27$), and body mass ($n = 8$).

[c] **, $P < 0.01$; ns, $P > 0.05$.

TABLE 2

RATIOS OF BODY MEASUREMENTS OF *Perochirus scutellatus* GIVEN AS PERCENTAGES AND IN THE SEQUENCE OF RANGE, MEAN, STANDARD DEVIATION[a]

CHARACTER[b]	ADULT MALES	ADULT FEMALES	JUVENILES	MANN-WHITNEY *U*-TEST[c] MALES VS. FEMALES	MANN-WHITNEY *U*-TEST[c] ADULTS VS. JUVENILES
HW/HL	76–87	74–83	70–78		
	81.2 ± 0.03	79.3 ± 0.03	74.6 ± 0.02	*	**
SL/HL	46–50	47–50	44–50		
	48.1 ± 0.01	48.2 ± 0.01	47.0 ± 0.01	ns	**
HL/BL	36–43	35–42	43–52		
	38.6 ± 0.02	38.8 ± 0.02	46.7 ± 0.02	ns	**
EW/SL	34–41	37–44	42–53		
	38.2 ± 0.02	41.1 ± 0.02	47.2 ± 0.04	**	**
Hi/SVL	40–47	38–45	43–52		
	43.5 ± 0,02	41.7 ± 0.02	41.6 ± 0.02	**	*
TD/TW	52–72	50–64	54–72		
	62.9 ± 0.05	56.9 ± 0.05	62.3 ± 0.05	**	ns

[a] $n = 40$ males, 30 females, and 30 juveniles with the exception of TD/TW where $n = 25$ males, 15 females, and 20 juveniles.
[b] HW, head width; HL, head length; SL, snout length; BL, body length; EW, eye width; Hi, hind limb length; TD, tail depth; TW, tail width.
[c] *, $P < 0.05$; **, $P < 0.01$; ns, $P > 0.05$.

was somewhat arbitrarily selected based on a preponderance of individuals in those size classes, leaving relatively few intermediates. The smallest egg-bearing female measured 89.6 mm SVL.

RESULTS

Morphological Comparisons

MEASUREMENTS AND SCALE COUNTS. The largest specimen (a male) measured 131.6 mm in snout-vent length and weighed 60.0 g. Males average significantly larger than females in all body measurements ($P < 0.01$), attaining nearly twice the body mass (Table 1). Males, on average, have significantly more femoral pores than do females and with the pore scales larger and pores more prominent, but no other differences in scale counts were detected between the sexes (Table 1). Compared with females, males have relatively broader heads, smaller eyes, longer hind limbs, and thicker (less flattened) tails, and compared with adults, juveniles tend to have proportionately longer and narrower heads with shorter snouts, larger eyes, and shorter hind limbs (Table 2). In many adults, the tail is incomplete or regenerated from previous injury. The tail length/snout-vent length ratio in six juveniles (36–69 mm SVL) with intact, unregenerated tails ranged from 98 to 105%.

COLORATION. In adults, the dorsum is usually mottled pale olive to dark gray or brown, occasionally with small, irregular white or gray patches. The back is usually paler than the head, neck, and tail, and more often gray than brown, and it is frequently washed with pale yellow green. Many individuals with predominately brown dorsa when initially observed became pale gray or greenish gray with various amounts of pale yellow wash within minutes after capture. The venter, including undersurface of limbs, is usually yellow or yellowish green, occasionally pale gray. The chin and throat are pale yellow medially, with white on the sides extending dorsally to the jowls. Regenerated tails usually are gray throughout, darker above than below, whereas unregenerated tails usually are dark brown or gray above and yellow or pale gray below. Irises

TABLE 3

DISTRIBUTION OF *Perochirus scutellatus* ON KAPINGAMARANGI ATOLL BASED ON SIGHT RECORDS (SR) AND ON SPECIMENS COLLECTED DURING SUMMER 1996

ISLAND	AREA[a] (ha)	DURATION OF VISIT		SPECIMENS COLLECTED
		DAYS	HOURS	
Torongahai	7.9	1		28
Ringuturo	10.8	4		
Rikumanu	0.4		2	
Turuaimu	0.8		2	1
Pepeio	0.3		3	6
Nunakita	5.8	1		2
Hukuniu	0.4		2	13
Parakahi	1.3	1		16
Werua	16.8	24		
Touhou	3.7	[24][b]		
Taringa	5.0	1		4
Matiro	4.5	2		45
Matuketuke	0.4		5	
Ramotu	1.4		4	
Sakenge	0.9		4	4
Matawei	0.3		4	1
Hukuhenua	2.0		5	[1 SR]
Hepepa	0.9		3	
Tipae	0.7		4	2
Tetau	3.2		4	3
Nikuhatu	0.9		3	1
Takairongo	1.6		4	12
Tangawaka	2.8	1		5
Hare	34.5	20		2
Tirakau	0.7		3	1
Tariha	0.9		3	
Tiahu	0.2		4	
Tokongo	0.7		2	
Tirakaume	0.5		3	
Pumatahati	2.6	1		
Matukerekere	0.001		2	

[a] Data from Bryan (1971) with values for Matiro and Hare modified to include estimated increases attributed to mergings with adjacent islands (see text under *Study Area*).

[b] Included as part of the 24 days listed for Werua, because the two islands are connected by a causeway and were surveyed approximately equally while I was in residence on Touhou.

are olive, green. or bluish green. The overall coloration and pattern of the adults provides a measure of camouflage against a background of scattered patches of pale, crustose lichens on tree trunks (see color plate I). Juveniles are often paler and more uniformly and brightly colored throughout, with more yellow green above and brighter yellow below.

TABLE 4

HABITAT DISTRIBUTION OF 136 *Perochirus scutellatus* COLLECTED JUNE–AUGUST 1996

HABITAT	DAYTIME	NIGHT
Scaevola bushes		19 (13.9%)
Cocos leaf axils	16 (11.8%)	
Cocos trunks	17 (12.5%)[a]	
Artocarpus trunks	08 (5.9%)[b]	
Guettarda trunks	53 (39.0%)	
Miscellaneous tree trunks and shrubs[c]	13 (9.6%)	10 (7.4%)

[a] Includes 12 specimens collected from the petiole bases of two mature trees used for tupa production.

[b] Includes one specimen taken from beneath loose, flaking bark.

[c] Includes *Guettarda*, *Artocarpus*, *Cocos*, *Cordia*, *Pandanus*, *Allophylus*, and one unidentified and partially sand-covered log on the beach examined at night.

Vocalization

The only sound I can be certain was produced by a *P. scutellatus* was a soft, muted chirr or chortle heard only once and at close range.

Habits and Habitat

Perochirus scutellatus is a predominately diurnal, forest tree trunk species occurring in sparse to dense populations on at least 18 of the 31 islands on the atoll (Table 3). Of the 136 specimens I collected, 90 (66%) were exposed on tree trunks and limbs or branches in daylight (Table 4). Fifty-three (59%) of these were perched on *Guettarda speciosa,* as were 86% of all *P. scutellatus* I observed during daytime surveys of trees on four different islands (Table 5). *Guettarda speciosa* is most common at the forest edge on the seaward side of the larger islands, and it is more or less uniformly distributed on the smaller ones. Niering (1956) recorded it on all islands with the exception of the smallest, Matukerekere. I found *P. scutellatus* most numerous on mature trees at least 0.5 m in diameter at breast height, particularly those with twisted, fluted boles and with sucker shoots and slender, adventitious stems or trunks growing parallel to the main trunk and arising largely

TABLE 5

FREQUENCY OF DAYTIME ENCOUNTERS OF *Perochirus scutellatus* ON TREE TRUNKS

TREE SPECIES	OCCUPIED TREES		ENCOUNTERS		
	n	(%)	*n*	(%)	$\bar{x}$/TREE
Guettarda speciosa	57	(74.0)	165	(86.4)	2.9
Cocos nucifera	12	(15.6)	13	(6.8)	1.1
Pandanus sp.	4	(5.2)	6	(3.1)	1.5
Cordia subcordata	3	(3.9)	5	(2.6)	1.7
Barringtonia asiatica	1	(1.3)	2	(1.1)	2.0

NOTE: Survey sites: Parakahi (35 min), Taringa (85 min), Tipae (15 min), Takairongo (23 min).

TABLE 6

OBSERVATION RATE (NUMBERS PER HOUR) OF *Perochirus scutellatus* ON KAPINGAMARANGI ATOLL

HABITAT	SURVEY TIME (min)		OBSERVATION RATE	
	DAYTIME	NIGHT	DAYTIME	NIGHT
Artocarpus tree trunks	156	69	23.1	11.3
Cocos tree trunks	15	49	16.0	3.7
Miscellaneous tree trunks and shrubs	301	550	44.8[a]	2.1
Cocos leaf axils	440		3.2	
Scaevola bushes		272		4.6

NOTE: Calculated from surveys limited to the 18 islands where *P. scutellatus* was recorded (see Table 3), but not including data from all 136 collected specimens, the majority of which were obtained during untimed surveys.

[a] Including about 50 individuals observed together on the petiole bases of two adjacent mature *Cocos* trees.

from injury or pruning. I also saw *P. scutellatus* regularly (but in much smaller numbers) on the more exposed trunks and larger limbs of breadfruit trees, and fewer still on coconut, pandanus, and other trees, in all cases more often in daytime than at night (Table 6). Most of the *P. scutellatus* I observed were 2–8 m high on the main trunks, and of the 58 whose orientation was recorded, 31 (53%) were facing up and 27 were facing down. I also encountered *P. scutellatus* in leaf axils of young coconut trees small enough that the petioles could be grasped by hand and bent away from the central axis of the plant. Others were seen at night on *Scaevola* bushes along the strand line. *Scaevola* was not surveyed during the day, but I saw no *P. scutellatus* there during incidental daytime observations. Those collected in leaf axils and in *Scaevola* were chiefly juveniles and accounted for 25 (83%) of the 30 specimens less than 80.0 mm in snout-vent length. Only 10 (25%) of the 40 specimens collected in *Scaevola* and leaf axils exceeded 80.0 mm SVL.

The greatest concentration of *P. scutellatus* I saw was about 50 approximately evenly distributed among the exposed petiole bases of two adjacent mature *Cocos* trees on Torongahai during midafternoon on 3 July 1996. The inflorescences were being tapped for tupa, a popular local beverage drunk fresh or fermented, and the geckos probably were drawn to insects attracted to the sweet secretions. Some of the tupa gatherers claimed that the lizards drank the sap and occasionally were found dead or swimming in the collecting vessels. The density of *P. scutellatus* on Torongahai is one of the highest on the atoll; I counted approximately 150 in 60 min, mainly in trees at the forest edge, and observed more there on *Scaevola* bushes at night than on any other island. However, I did not observe *P. scutellatus* on mature *Cocos* crowns elsewhere on Torongahai or on any other island. The maximum number per tree that I recorded outside Torongahai (all in daylight and on *Artocarpus* and *Guettarda*) was 20 on Takairongo, 19 on Parakahi, 13 on Pepeio, 9 on Matiro, 8 on Tangawaka, and 6 on Tetau.

DISCUSSION

Perochirus scutellatus is known only from Kapingamarangi, which is the only atoll in Micronesia with an endemic species of vertebrate. Atoll species as a rule are broadly distributed and typically are a subset of populations located on nearby high islands or other source areas, as is the case with terrestrial vertebrates on other Pohnpei State atolls I have visited, including Mokil, Pingelap,

Ant, and Pakin (pers. obs.). By virtue of its large body size, diurnal habits, and conspicuously exposed perch sites, the likelihood of *P. scutellatus* having avoided detection elsewhere, especially on the larger, more densely populated, and more frequently studied potential source areas is slim. On the other hand, many of the smaller islands scattered throughout the Pacific remain poorly surveyed biologically, and their faunas are incompletely known. *Perochirus scutellatus* may exist undetected elsewhere, or, alternatively, it may have been more widely distributed in the past and is now relict on Kapingamarangi. That it may have evolved in situ is another but less likely possibility in view of its many unique and divergent features suggestive of a long time in isolation, whereas the atolls are of relatively recent origin (see Radtkey et al. 1995).

To what extent the apparent absence of *P. scutellatus* on 13 islands is real or an artifact of sampling is unknown. Six of the 13 islands are southernmost on the atoll, all south of the 450-m-wide channel separating Tirakau from Tariha, and five of these are among the smallest islands, each less than 1.0 ha. *Perochirus scutellatus* is unrecorded also on the two thickly settled islands, Touhou and Werua, and I saw none in edificarian habitats on islands where it was otherwise common and widespread in the forest, thus suggesting that it avoids immediate areas of human habitation. Its apparent absence on Rikumanu and Matuketuke (both 0.4 ha) may be due in part to small island size and lack of sufficient habitat, although I recorded the species on several islands as small or smaller, including Pepeio, Hukunio, and Matawei. Likewise, it is difficult to account for the lack of records from Ramotu (1.4 ha) and Hepepa (0.9 ha), and especially Ringutoru, the third largest island and the one nearest Torongahai, which hosts one of the densest populations of *P. scutellatus* on the atoll. I camped on Ringutoru for nearly a week without seeing any *P. scutellatus.* It is interesting that *P. scutellatus* is scarce on Hare, the largest island and currently without permanent human habitation. Possibly current population densities and apparent distributional anomalies in *P. scutellatus* are to some extent a reflection of historical changes in land use. Before the 1870s, for example, both Hare and Ringutoru were said to have been as thickly settled as Touhou and Werua were during the 1950s (Wiens 1962), and the absence or scarcity of *P. scutellatus* on these islands now may be a carryover from times when they were more densely populated or managed more vigorously. In addition, occasional severe storms may contribute to local disjunctions and variations in population density. The most obvious potential predators on the atoll include rats, cats, and the Micronesian Starling (*Aplonis opaca*).

In addition to *P. scutellatus,* four other gecko species and three skinks are among the reptiles recorded on Kapingamarangi. Three of the geckos are widespread and common on the atoll: *Perochirus ateles* (collected mainly under dead bark on standing trees), *Gehyra oceanica,* and *Lepidodactylus lugubris.* None of the three is diurnal, but all occur syntopically with *P. scutellatus. Gehyra mutilata* was recorded by Niering (1963), but I saw none. Of the three skinks, *Emoia impar* is the most numerous, being the most common reptile on the atoll. It occurs mainly on the forest floor and low in the vegetation. *Lipinia noctua* also is widespread, but much less numerous. It is mainly arboreal and often found under loose bark. *Emoia caeruleocauda* has been recorded once (CAS-SU 25633). None of these seven species is as large as *P. scutellatus,* and most are considerably smaller. In its large body size, presumed insectivory, and use of tree trunks as diurnal perches, *P. scutellatus* appears to be utilizing a niche occupied by the green tree skink (*Lamprolepis smaragdina*) on other Pohnpei State atolls (pers. obs.). The stomachs of several *P. scutellatus* that I examined were largely empty except for a few small insect fragments.

Although *P. scutellatus* is generally common on Kapingamarangi and abundant on many of the islands, its limited range (about 1 km^2) makes it especially vulnerable to any natural or human-induced environmental changes. This limited distribution should be considered a factor in evaluating the biological impact of any island projects that would markedly alter the current habitat.

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